IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Cieslak et al.	Attorney Docket No.: CISCP139
Application No.: 09/588,027	Examiner: Kang, Paul H.
Filed: June 5, 2000	Group: 2141
Title: NETWORK CACHE-BASED CONTENT ROUTING	

DECLARATION OF PRIOR INVENTION UNDER 37 C.F.R. § 1.131

Commissioner for Patents
Washington, D.C. 20231

I, Martin Cieslak, do hereby declare:

1. I am a co-inventor of the subject matter claimed in the above-referenced patent application.

2. My co-inventors, James Aviani and Martin Kagan, and I invented the subject matter recited in the present application prior to February 4, 2000, as evidenced by our joint submission on April 26, 1999, of an invention disclosure entitled *Network cache-based content routing* (Patent Idea Details for Idea #48210) to the online patent disclosure repository maintained by our employer at that time, Cisco Systems, Inc. A copy of the entry is attached to this declaration, with confidential material redacted.

3. All of the features of the above-reference patent application are described in the invention disclosure which is sufficiently detailed to evidence not only the conception of the invention, but to allow one of ordinary skill in the art to reduce the invention to practice as well.

4. In addition, subsequent to the submission to Cisco's online patent disclosure repository, due diligence was exercised in the preparation and filing of the present application on June 5, 2000.

5. All of the work relating to the conception and reduction to practice of the invention was performed in the United States.

6. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: Mar. 20, 2007 Signature _____

Martin Cieslak

Network cache-based content routing

CPOL No.: 48210 **Seq No.:** 1594 **Status:** Pending **Submitted:** 26-Apr-1999 [redacted]

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Idea Details

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James Aviani (javiani) *Employee has left Cisco.*

Martin Cieslak (mcieslak) **Phone:** +1 248 455 1789 **Manager:** anandv **Dept:** Caching Services ...
Type: Regular **Division:**STG/DCSTG **Site:** -- **Info:** Cisco Directory

Martin Kagan (mkagan) *Employee has left Cisco.*

Background: In discussions with beta customers, I have been informed of two problems in need of innovative solutions:

1. Since caches act as traffic consolidators, they may mess-up route load-balancing schemes based upon client source ip-address. For example, while an earlier decision may have been made to let x connection go out of router a, rather than b or c, the cache that x connection gets redirected to might always use router b as its default gateway, thus voiding the earlier decision to send that request out of router a.

2. In some overseas ISPs, there are two very different connections to US content providers: terrestrial links(fast, expensive), and satellite links (slow, cheap). In order to save themselves money, and yet still provide what appears to be fast service, one administrator (Mark Tracey, OzEmail) suggested that he would like HTML pages to come down the terrestrial link, while the larger (and thus more expensive) binary objects (GIFs, JPEGs, MPEGs, PDFs, etc) arrive via satellite. Because browsers are designed to start drawing a page as soon as the HTML code arrives, independent of the inline images, the user experience would be that "the page" appears to arrive quickly, even though the graphics may be taking the slow-path.

Both of these problems can, I believe, be solved through cache-based content routing.

Possible Prior Art: ---

Summary: Problem 1: Traffic consolidation

Solution 1: A cache with multiple IP addresses should be able to set a socket option on each outgoing request, specifying which source IP address should be placed on the outgoing packet. Round-robin schemes could be offered to provide some load-balancing of out-going traffic.

Solution 2: When a GRE-encapsulated, WCCP-redirected, packet arrives at a caching

node, a flag should be set to record the IP address of the redirecting router. Thus if the cache needs to issue its own request for that object, it can reuse that router as its exit path. This has become critical, as WCCP now supports multiple routers.

Problem 2: Differentiated content-routing

Solution: Again, allowing the application to set a socket-option on outgoing requests to specify a source IP address and/or gateway would radically change the functionality of caches. MIME types, for example, are generally simple to detect from the suffix of the URL (ie, *.htm vs. *.gif). Cache administrators ought to be able to create routing rules based on information which only a cache has, such as:

1. Cache-able vs. uncache-able content
2. Ascii vs. Binary objects
3. HTTP requests vs. ICP requests
4. Regular requests vs. forced-reloads
5. Static webpage requests vs. browser-based applications

Restatement: ---

Advantages: As more and more Internet traffic comes to rely on HTTP as its sole transport method, the proxy server offers the unique position of being able to identify and differentiate types of traffic within the port 80 stream.

[redacted]

[redacted]

Standards: ---

Technologies:

- Content Networking > Web Cache Communications Protocol (WCCP)
- IP > IP Tunneling > Generic Routing Encapsulation (GRE)
- IP > IP Application Services > HTTP

Networking Solutions:

- Large Enterprise > Networking Solutions for Large Enterprise > Access Solutions for Large Enterprise > Internet Access Solution
- Large Enterprise > Networking Solutions for Large Enterprise > Network Management Solutions for Large Enterprise > Routing and Switching Management Solution
- Large Enterprise > Networking Solutions for Large Enterprise > Content Networking Solutions for Large Enterprise > Internet CDN Solution

Categorization Notes:

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Categories Summary
[Rou] [Sw/SC]
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PDDs: ---

Supporting Documents:

- ---

Documents:

Type	Document	Size
	No Documents Exist.	

Notes: ---